



Materials Engineering Branch

TIP*



No. 004 Cleaning of Flight Hardware

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To help insure a low contamination level on flight hardware, particular attention must be given to the state of cleanliness of the cleaning solvents and the implements that are used. Quite often a solvent that is used for cleaning becomes a source of contamination. In general spectroscopic or reagent grade solvents, or equivalent, should be used for cleaning sensitive hardware. It has been determined, for most cases, that ethyl or isopropyl alcohol is the best overall choice of cleaning solvent. If possible, a bottle from each lot of solvent should be analyzed to verify its cleanliness.

The use of plastic foam cloths or swabs for cleaning is unacceptable and should be discontinued! Cloths, cotton and cotton swabs as obtained for the supplier/manufacturer are usually not acceptable for critical cleaning without pretreatment. This pretreatment consists of the extraction of the contaminants from these materials in a Soxhlet extractor with the same solvent that will be used for the cleaning procedure. The extraction should be conducted for 48 to 72 hours followed by a room temperature evaporation of most of the solvent and concluding with oven drying. A more stringent extraction is required if the wipes are to be used for contaminant identification. Even then, these wipes and swabs should only be used for qualitative identification of contaminants.

The cleaned materials must be stored in a clean, dry and non-contaminating container. During use the cleaned wipes should be protected from contamination by hands, oils or contaminated surfaces.